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No. 82/108

TO COUNTY ASSESSORS:

SMALL HYDROELECTRIC PROJECTS

Section 210 of the Federal Public Utility Regulatory Policies Act of 1978 requires that electric utilities buy power from small power producers using resources such as running water, etc., as a source of energy for power generation. It requires that utilities pay independent power producers the "full avoided costs," which is the cost the utility would incur to generate the extra power itself or buy it from another utility, for their input.

Federal regulations leave to state commissions the task of deciding how these costs should be computed and whether to regulate rates directly. The California Public Utilities Commission has prescribed a procedure for establishing rate schedules and has instructed electric utilities in California to publish schedules of their "full avoided costs" and to make these available to existing and potential small scale power producers.

As a result of this federal legislation, hundreds of small hydroelectric projects have been proposed in California. While these plants sell their product directly to regulated public utilities which are assessed by the state, small hydroelectric projects are not regulated public utilities and are assessed on the local roll. They pose a number of appraisal and assessment problems for the assessor.

The mechanics of processing data into value indicators is simple and conventional; however, the data necessary for forecasting future expectancies may be difficult to obtain because of a lack of experience with property of this type. Small hydroelectric projects also pose several assessment problems. Different treatment is required for facilities on fee-owned lands, on tax-exempt government land (possessory interests), on land under California Land Conservation Act contracts, on land within a Timberland Preserve Zone, and on lands owned by local governments but located outside their boundaries.

The best source of data at this time is typically the property owner. Potential investors are encouraged by the Federal Energy Regulatory Commission (FERC)to make both reconnaissance and feasibility studies prior to applying for a license to sell power. These studies will contain the owner's estimates of construction costs, income, and expenses of operation. Owners may also be able to supply actual construction costs as well as actual income and expense data.

If this information is not available and the project has been licensed, a copy of the license application may be obtained from the FERC. Applications typically contain the same information that would be contained in a feasibility study. All cogenerators selling electricity to public utilities must be licensed by this agency and license applications are public documents. They may be obtained for the cost of reproduction from:

Division of Public Information
Federal Energy Regulatory Commission
825 North Capital Street, N.E.
Washington, D.C. 20426

The fee simple value of a property such as a small hydroelectric plant is usually appraised by first estimating the value of the water right using a procedure similar to the land residual technique of the income approach. The values of the actual plant and the land (minus water right) are then estimated and added to the water right value to arrive at total property value.

The value of the water right is estimated by first computing the gross income from a new plant that properly develops the water right. From this amount the anticipated operating and maintenance expense for this plant are deducted to arrive at net income. An income imputable to the new and proper plant is deducted from net income. Finally, the income imputable to land or that portion of a larger parcel used as a plant site is deducted, leaving a residual income to the water right. The residual perpetual water right income is then converted to a capital value. An example of this procedure follows:

Example No. 1.

Gross annual income (new proper plant)	$ 50,000
Less:	
Operating and maintenance expenses	-15,000
Net operating income	$ 35,000
Less:	
Income imputable plant and land	
RCN of a proper plant	$100,000
REL of new plant	35 years

Example No. 1 (Contd.)

Rate of return 15%*

* (14% + 1% taxes)

P.W. 1 p/a, 35 years, 15%:

6.6166

Cap Recovery Rate:

$\frac{1}{6.6166} = .1511$

Income to plant:

$100,000 x .1511 = $ 15,110

Value of Plant Site $10,000

Income Imputable to Plant Site

$10,000 x .15 = +1,500

Income to plant and site -16,610

Residual Income to Water Right $ 18,390

Value of Water Right:

18,390 ÷ .15 = $122,600

If the hypothetical new and proper plant coincides with the actual plant, total property value may be estimated simply by finding the sum of the value of the water right as computed above plus land value plus plant cost new. However, if the actual plant is an older plant or a less efficient plant, the value of the plant must be estimated using the income approach and a technique similar to the building residual technique. This is done by processing the gross income anticipated from the actual plant into a capital amount. An example of this process follows:

Example No. 2

Gross	annual income actual plant		$40,000
Less:	Operating and maintenance costs		-13,000
	Net Operating Income		$27,000
Less:	Income to land and water right		
	Water right value $122,600		
	Income imputable to water rights		
	122,600 x .15 =	$18,390	
	Land value $10,000		
	Income imputable to land 10,000 x .15 =	+1,500	
	Income imputable to water right and land		-19,890
	Income imputable to plant		$ 7,110
	Estimated remaining economic life of plant 25 years		
	P.W. of 1 per annum for 25 years at 15% = 6.4641		
	Plant value $7,110 x 6.4641 =		$ 45,960
	Land value		10,000
	Water-right value		+122,600
	Capitalized earning ability		$168,560

The provisions of Article XIII A bring about several assessment problems. If the land has been in the same ownership for a long period of time and a base year land value has been established, it will be assumed that this land value includes the value of the water right. The assessor is then limited to adding the value of the new construction. If the land value is thus "frozen" in a base year value not reflecting actual current market value, the best approach to valuing the new construction is to add the actual cost of new construction. The income approach outlined above is not applicable in such a case.

If the plant is located on tax-exempt government land, the value of the possessory interest in the land must be estimated. Typically, permits from governmental agencies for developments of this type are for long terms. The difference between the fee value of the property and the value of the possessory interest in the property is the reversionary

value of the water right and the land. This procedure would follow the same steps as were outlined in Example No. 1, with the following additional steps:

Example No. 3

Water right value	$122,600
Land Value	+10,000
Total land value	$132,600
P.W. of 1 deferred 50 years at 15% = .0009	
Value of reversion $132,600 x .0009 =	-119
Possessory interest value of land and water right	$132,481

If the plant is located on land enforceably restricted by a Land Conservation Act contract, the income imputable to the water right would be considered income from a compatible use. This income is then included in the income to be capitalized as prescribed in Section 423 of the Revenue and Taxation Code. A base year value, as per Section 110.1, is assigned to the improvement as of the date of completion of construction or date of a change of ownership.

If a plant is located in a "Timberland Preserve Zone", a different problem arises. A power generating facility would be considered to be an exclusive compatable use, and will require a base value to be set on the plant property. (See letter to Timber County Assessors of December 2, 1981). The base year value of the improvements is simply their full cash value as of the date of construction. The base year value of the plant site and of the water right is the full cash value as of the lien date 1975 or the date of a subsequent change in ownership.

Values estimated for prior dates are based upon expectations and data that were applicable as of the base year appraisal date. In the case of water rights on T.P.Z. land, if it is reasonable to assume that use as a hydroelectric plant would not have been anticipated at this date, the water right will not have value. If, on the other hand, a knowing buyer would have considered this as a valuable right, a value must be assigned. It might be well to keep in mind that the Federal Public Utility Regulatory Act was passed in 1978. Prior to this date purchasers would probably not be aware of the water right value that would arise from the installation of a small hydroelectric plant. After that date we would probably assume that a buyer would be aware of this potential.

Estimating values for a prior date is always difficult. In the case of water rights the difficulty is compounded by the fact that data that forms the basis of the appraisal comes from feasibility studies made when the site is developed or from experience data from a plant in operation.

A suggested method of making a pre-date water right appraisal utilizes income and expense data as well as development cost data from a feasibility study made at the time of development. Data from the study is adjusted to reflect the expectations at the time of the change in ownership. This may be done by trending amounts in reverse using appropriate trend factors. A proper, or most reasonable factor will depend upon the nature of the amount being trended. In the case of land value, the best indicator is a study of local land price trends; improvement costs should be adjusted by an appropriate building cost index, income and expense data is best adjusted using a consumer price index. Trended amounts and a yield rate applicable as of the transfer date are used to compute a value indicator using the previously illustrated capitalization technique.

Example No. 4.

Assume the same facts as in Example No. 1, and that:

(1). The last transfer occurred February 1, 1979.

(2). The generating plant was developed as of February 1, 1982.

(3). A proper rate of return on February 1, 1979 was 12 percent.

(4). On 2-1-79 land was selling for 75 percent of 2-1-82 prices.

(5). Construction costs as of 2-1-79 were 76 percent of 2-1-82 costs.

(6). 2-1-79 Consumers price Index was 203.9.

(7). The 2-1-82 C.P.I. was 295.8

Factor to adjust 1-1-82 income and expenses to 1-1-79 $\frac{203.9}{295.8} = .689$

Gross annual income 2-1-82 =	$50,000
Adjustment factor	x.689
Gross annual income 2-1-79 =	$34,450

Operating and Maintenance Expense 2-1-82 =	$15,000	
Adjustment factor	x.689	
Operating and Maintenance Expenses 2-1-79 =	$10,335	
RCN of a proper plant 2-1-82 =	$100,000	
Adjustment factor	.76	
RCN proper plant 2-1-79	$ 76,000	
Land Value 2-1-82	$ 10,000	
Adjustment factor	.75	
Land Value 2-1-79	$ 7,500	
Gross annual income (new proper plant)		$ 34,450
Less:		
Operating and maintenance expenses		10,335
Net operating income		$ 24,115
Less:		
Income imputable plant and land		
RCN of a proper plant	$76,000	
REL of new plant 35 years		
Rate of return 13%*		
* (12% + 1% taxes)		
P.W. 1 p/a, 35 years, 13%		
7.5855		
Cap Recovery Rate:		
$\frac{1}{7.5855}$ = .1318		
Income to plant:		
$76,000 x .1318 =	$10,016	
Value of Plant Site $7,500		
Income Imputable to Plant Site		
$7,500 x .13 =	+975	

Income to plant and site	-10,991
Residual Income to Water Right	$ 13,124
Value of Water Right as anticipated in 1979:	
$13,124 ÷ .13 =	$100,954

Hydroelectric plants as well as land and water rights owned by local governments and located outside their boundaries, must be assessed according to Section 11 of Article XIII of the California Constitution.

I hope that this information is helpful to you. If you have any further questions, please contact our Technical Assistance unit at (916) 445-4982.

Sincerely,

Verne Walton

Verne Walton, Chief
Assessment Standards Division

VW:bjb
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